Outline for DEQ Implementation Ready-TMDL Approach for Coastal Zone Additional Management Measures for Forestry

The following describes possible approaches to addressing the need for additional management measures for forestry. These are being discussed and evaluated, internally and in consultation with other agencies and experts. Therefore, this should be considered a draft outline that is potentially subject to change.

Request 3b: How will Implementation Ready-Total Maximum Daily Load address concerns with landslide-prone locations and roads, especially "legacy" roads?

Sediment Target(s):

- Drinking Water Narrative: No impairment of the ability to procure potable drinking water in source water areas.
- Bedded Sediment Narrative: No biological impairment of streams due to sediment
    - Bedded Sediment Benchmark: Biological index target which is a synthesis of the macroinvertebrate abundance and taxa observed under conditions unimpaired by excessive sedimentation.
    - Two-step impairment evaluation
        1. Evaluate whether macroinvertebrate community has declined (>15% loss) using PREDATOR statistical model (Hubler 2008) [most sensitive beneficial use, ties into both bedded sediment and biocriteria narrative standards]
        2. If macroinvertebrates are impaired, use of a statistical model including STRESSOR ID tool (Huff et al 2006) to evaluate whether the sediment condition is a contributing factor to the macroinvertebrate decline
- Turbidity Numeric (for evaluating discreet sources, e.g. stream crossings in the road network): No more than 10% increase in natural stream turbidities as measured relative to a control point immediately upstream of the turbidity causing activity.

Source/Linkage Analysis:

- Roads—utilize new & existing information about forest roads to create risk assessments for roads by age, location, maintenance, surfacing, etc.
- Landslide-prone areas (LPAs)—Use LiDAR data in cooperation with DOGAMI to create a landslide inventory map and perform analysis to determine areas at risk from sliding due human causes (including forest practices)
    - DMAs and landowners can use site-specific surveys and analysis by geotechnical engineers to modify the landslide vulnerability assessment on a case-by-case basis
- Bank condition—Identification of failing or eroding banks. utilize existing information to demonstrate sources and effects of riparian protection and restoration

Sediment Allocations:

- Roads—set a limit on increase in turbidity below potential delivery points (e.g. no more than 10% increase [DEQ's current turbidity standard])
- Landslide-prone areas—
    - Large Woody Debris (LWD) in-stream targets and limits on increases in sedimentation below LPAs (e.g. no more than 10% increase)

    - LPAs identified by a regional analysis/map (working with Oregon Department of Geology and Mineral Industries to do this based on LiDAR) with the potential for modification by site-specific analysis (e.g. report by a geotechnical engineer)
- Bank and in-stream conditions—LWD and vegetation targets)
- All other sources – Geographic target based reductions required to meet the biological index

Sediment Surrogates:

- Roads—management measures (see 3c below)
- Landslide-prone areas—management measures (see 3c below)
- Bank condition—require system potential vegetation for stabilization in agricultural and rural residential areas; utilize forest practices requirements in forestlands (see FPA rules and 3c below)

Request 3c: Examples of forestry implementation measures ("safe harbor BMPs") for riparian areas on small and medium fish-bearing streams, roads, landslide prone areas

Riparian Protection for Small and Medium Fish-Bearing Streams on private land:

- Increased basal area retention targets (relative to current Forest Practices Act requirements) in existing Riparian Management Areas and/or increased RMA width during clearcut harvests
- Retention of riparian hardwoods which are allowed to be cut under current FPA rules
- Restricting timber harvest in RMAs to ecological restoration/enhancement activities only

Landslide-prone areas:

- Identification of LPAs (e.g. 0-order basins, inner gorges, steep slopes, convergent topography, vulnerable locations on deep-seated landslides) in harvest notifications
- No harvest or partial harvest requirements in LPA zones to maintain evapo-transpiration processes and canopy cover of ground—trees must be windfirm to avoid windthrow-triggered landslides
    - Reduces or eliminates anthropogenic changes to landslide timing and increase in landslide frequency
    - Provides LWD for sediment routing and aquatic habitat benefits if site does slide into stream
- Increased requirements for leave trees and downed wood if LPA zone is likely to naturally deliver to streams in the near term

Forest roads:

- Inventory of roads and assessments of road segment's potential to deliver sediment to streams and vulnerability to failure, and the overall condition of the road network
    - Condition includes current state of maintenance and whether size of road network is appropriate
    - Vulnerability includes whether road is up to FPA standards, risks due to location and construction (e.g. roads in riparian areas or floodplains, roads on unstable landforms, crossings on unstable fills, side-cast construction on unstable areas—includes "legacy" roads), failure potential, and whether it delivers or is likely to deliver sediment to waters of the state (due to failures, drainage problems, or at stream crossings
- Prioritization of high risk road segments for maintenance, repair, or removal
    - Highest risk or most polluting segments targeted first

- Roads must be brought up to current FPA standards or decommissioned
- Road maintenance, improvements, and abandonment plans with timelines for actions and mandatory milestones to track progress, and monitoring/reporting to verify actions are occurring and to evaluate effectiveness